

**REMARKS**

Reexamination of the captioned application is respectfully requested.

**A. SUMMARY OF THIS AMENDMENT**

By the current amendment, Applicants basically:

1. Editorially amend the specification at two junctures, including rectification of the informality noted in enumerated paragraph 2 of the Office Action concerning page 21 of the specification.
2. Rewrite claim 4 as an independent claim including the limitations of the independent claim and all intervening claims, thereby rendering claim 4 (and claims 6 and 9 dependent thereon) allowable in view of enumerated paragraphs 9 and 10 of the Office Action.
3. Amend claims 1 and 8 - 10 in response to enumerated paragraph 3 of the Office Action (to insert the antecedent basis for the abbreviation "IC"), and editorially amend dependent claim 5.
4. Amend independent claim 1 in the manner mentioned in section B infra.
5. Add new claims 12-20, described in section D infra.
6. Respectfully traverse all prior art rejections (see section C infra).

**B. CLAIM AMENDMENTS**

Independent claim 1 has been amended to specify that a bending slit is provided on part of the insulative base and that portions of the output leads extend into an aperture formed by the bending slit. Support is manifest throughout the specification, including Fig. 1 wherein output leads 3 can be viewed as extending through the aperture formed by the bending slit 5.

### C. PATENTABILITY OF THE CLAIMS

Claims 1-3 stand rejected under 35 USC 102(b) as being anticipated by U.S. Patent 5,362,547 to Yamazaki. Claims 5 and 7 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Patent 5,362,547 to Yamazaki, in view of Applicant's submitted prior art JP Patent 6-3684 to Nishioka. Claims 8 and 10-11 stand rejected under 35 USC 103(a) as being unpatentable over U.S. Patent 5,362,547 to Yamazaki, in view of Applicant's submitted prior art JP Patent 6-3684 to Nishioka, and further in view of U.S. Patent 5,748,179 to Ito et al. All prior art rejections are respectfully traversed at least for the following reasons.

All prior art rejections are fundamentally premised on U.S. Patent 5,362,547 to Yamazaki. The film carrier 10 of U.S. Patent 5,362,547 to Yamazaki has a groove 17 on a reverse side in a direction said to be transverse to the lengthwise direction of the multiple leads 15A (col. 2, lines 22 - 28). The film carrier 10 is bent (see Fig. 3) in use so that a portion 18 thereof is bent substantially semicircularly, purportedly resulting in a compact semiconductor device such as a panel type display such as a liquid crystal display (col. 2, lines 17 - 21). The groove purportedly serves to prevent residual stress after bending (col. 2, lines 36 - 39).

The film carrier of U.S. Patent 5,362,547 to Yamazaki is bent at bending portion 18. A semiconductor device 14 is mounted (facing down) on film carrier 10. A printed circuit substrate 20 and a liquid crystal display panel 22 are adhered on an inner surface of the bent film carrier.

Importantly, the bent film carrier of U.S. Patent 5,362,547 to Yamazaki has no slit. Instead, to the very contrary of Applicants' technology, Yamazaki indicates that a slit may be a through-hole and may jeopardizes durability. *See*, e.g., col. 2, lines 44-51. Thus, U.S. Patent 5,362,547 to Yamazaki teaches away from using a slit, and instead has a groove.

Thus, the groove 17 of a film carrier 10 in USP '547 is entirely different in constitution and function from the bending slit of claim 1 in the present application. If the film carrier 10 of USP '547 is folded at the groove 17, the folded film carrier 10 must sandwich a printed circuit substrate 20, glass substrate and so on, as shown in Fig. 3. This is because a TCP (Tape Carrier Package) of USP '547 does not have a slit but a groove 17. Therefore, the TCP of USP '547 is not contained within a step region of the first, second glass substrates i.e., a picture-frame region. Accordingly, the device of USP '547 is not reduced in size.

In contrast, if a package (TCP) of claim 1 of the present application is folded at the claimed bending slit, the folded TCP does not have to sandwich a glass substrate, etc. That is to say, the TCP is folded without sandwiching a glass substrate, etc. Therefore, the folded TCP is contained within a step region of the first, second glass substrates, i.e., a picture-frame region. Accordingly, the device according to claim 1 is miniaturized.

Moreover, independent claim 1 has been amended to specify that portions of the output leads extend into an aperture formed by the bending slit. By contrast, the leads 15A of the tape carrier 10 of U.S. Patent 5,362,547 to Yamazaki are carried on a surface of the tape carrier which is opposite to a surface on which groove 17 is formed. Moreover, the leads 15A of the tape carrier 10 of U.S. Patent 5,362,547 to Yamazaki are not exposed by groove 17 (it again being emphasized that U.S. Patent 5,362,547 to Yamazaki admits that groove 17 is not a slit). Therefore, claim 1 and claims 2 - 3, 5, 7, 8, 10 and 11 which are dependent thereon or incorporate the same are also allowable.

Significantly, JP Patent 6-3684 to Nishioka does not disclose a bending slit as required in independent claim 1, and thus cannot remedy the deficiencies of the rejections. Moreover, concerning claim 5, the Examiner admits that U.S. Patent 5,362,547 to Yamazaki does not disclose the input leads having first and second input leads, a connecting slit, and a resist-uncoated connection portion. The Examiner admits

that U.S. Patent 5,362,547 to Yamazaki fails to disclose the internal connection of the first and second input leads within the IC.

The third applied reference, U.S. Patent 5,748,179 to Ito et al, relates to COG (chip on glass) rather than to tape on glass, and does not compensate or combine with any of the applied references, and therefore does not serve as a basis for denying patentability of Applicant's claims.

In view of the foregoing and other considerations, it is respectfully requested that all pending rejections be withdrawn.

#### D. THE NEW CLAIMS

New independent claim 12 concerns a liquid crystal panel module comprising a first substrate; a second substrate; and liquid crystals sealed between the first substrate and the second substrate. New claim 12 specifies that an edge of the first substrate protrudes beyond the second substrate to form a step region of the first substrate, and that wiring for driving the liquid crystals is provided in the step region. Fig. 2 is an example non-limiting embodiment which illustrates support for these limitations with reference to first substrate 11, second substrate 12, step region A, and wiring 15. In addition, generically encompassing all embodiments illustrated in the specification, new independent claim 12 includes plural driver integrated circuit (IC) packages (1) which are situated in the step region (A), and further specifies certain aspects of the plural packages. Those aspects include the insulative base, driver integrated circuit (IC) which is mounted on the insulative base, the output leads which are provided on the insulative base and which are connected to the driver integrated circuit (IC), and the bending slit, all of which are essentially disclosed in original independent claim 1.

Further, new independent claim 12 specifies that the insulative base is folded substantially one hundred eighty degrees at the bending slit into a folded configuration to define an upper base folded portion which overlies a lower base folded portion. The base in

the folded configuration is oriented so that the driver integrated circuit (IC) is mounted on an upper surface of the upper base folded portion and so that the output leads extend on a lower surface of the lower base folded portion for contacting relation with the wiring in the step region. For support, *see*, e.g., Fig. 2, Fig. 8, and Fig. 9 and the specification text describing the same.

New dependent claim 13 is directed to the first embodiment (*see*, e.g., Fig. 1 - Fig. 2 and specification text describing same), and specifically recites the input leads and an input connection board which extends across the upper surfaces of the upper base folded portions of the insulative bases of the plural packages for supplying signals to the input leads of the plural packages. The input connection board 13 illustrated in Fig. 2 is one example of support for the last paragraph of new dependent claim 13.

New dependent claim 14 is directed to the second embodiment (*see*, e.g., Fig. 3 - Fig. 4 and specification text describing same), and specifically recites the input leads as comprising first input leads and second input leads which are respectively provided on the insulative base so as to extend bilaterally outwardly generally perpendicularly to a direction in which the output leads extend from the driver integrated circuit (IC). Further new dependent claim 14 requires the connecting slits which form part of the subject matter of allowable claim 4. Therefore, in addition to the patentable features already recited in independent claim 12, new dependent claim 14 is deemed allowable.

New dependent claim 15 is also directed to the second embodiment and states that the wherein the connecting slits of adjacent plural packages are situated in overlapping relation. For support, *see*, e.g., Fig. 4 and specification text pertaining thereto.

New dependent claim 16 is directed to the third embodiment (*see*, e.g., Fig. 5 - Fig. 7 and specification text describing same), and specifically recites the input leads as extending bilaterally outwardly generally perpendicularly to a direction in which the output leads extend from the driver integrated circuit (IC). Further, like original

dependent claim 5, new dependent claim 16 requires the connecting slit provided on one part of the insulative base and a resist-uncoated connecting portion is provided on another part of the insulative base where the second input leads are provided.

New dependent claims 17 and 18 resemble original claims 2 and 3, respectively.

New dependent claim 19 includes limitations from the first and second paragraphs of dependent claim 10, the first paragraph also containing the limitation that the liquid-crystal-panel driver IC packages are provided only on a surface of the first glass substrate of the step region. New dependent claim 20 specifies that a height of the liquid-crystal-panel driver IC packages from the surface of the first glass substrate is not higher than that of a surface of the second glass substrate opposite to a surface of the second glass substrate attached to the first glass substrate. Both new dependent claims 19 and 20 are supported by the original disclosure (*see*, e.g., Fig. 2 and text describing same).

None of the applied references, either alone or in any allegedly proper combination, are deemed to provide a basis for denying the patentability of the new claims.

#### E. MISCELLANEOUS

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly solicited.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Shigeki TAMAI  
Serial No. 09/472,816

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By:

H. Warren Burnam, Jr.

H. Warren Burnam, Jr.  
Reg. No. 29,366

HWB:lsh  
1100 North Glebe Road, 8th Floor  
Arlington, VA 22201-4714  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100